



Appendix C Mitigation Strategy

Placer County Local Hazard Mitigation Plan Update HMPC Meetings #3 & 4 - Mitigation Strategy Meetings February 24 & March 2, 2021

Table of Contents:

Agenda

Day 1:

- LHMP Project Status/Next Steps/Timeline...4
- Hazard Identification & Profiles...5
- Risk Assessment Methodology...6
- Priority Hazards ...7
- Data Needs...8
- Mitigation Strategy: Goals...9
- 2018 State HMP/2016 LHMP Goals...10
- Example Goal Statements...12
- Goals Development...13

Day 2:

- Mitigation Action Strategy Development: Ground Rules...15
- Mitigation Strategy: Actions ...16
- Categories of Mitigation Measures...16
- Mitigation Measures from Placer 2016 LHMP...20
- Mitigation Strategy: Action Plan...27
- Mitigation Criteria ...27
- Mitigation Action Prioritization Instructions...30
- Mitigation Action Worksheet ...31

Jeanine Foster (jeanine.foster@fostermorrison.com)
Foster Morrison Consulting, Ltd.
(303) 717-7171



AGENDA

**Placer County
Local Hazard Mitigation Plan (LHMP) Update
HMPC Meetings #3 & #4 - Mitigation Strategy Meetings
February 24 & March 2, 2021**

HMPC Meeting #3: (1.5 hours)

1. Introductions
2. LHMP Project Status and Next Steps/Timeline
3. Priority Hazards Review
4. Develop Plan Goals and Objectives
5. Introduction to HMPC Meeting #4: Mitigation Alternatives/Actions/Projects

HMPC Meeting #4: (2 to 2.5 hours)

1. Introductions
2. Review Mitigation Categories and Selection Criteria
3. Brainstorming of Mitigation Alternatives/Actions/Projects by Hazard
4. Review of Voting Process for Prioritization of Mitigation Actions/Projects
5. Questions

**Mitigation Strategy Meetings
February 24 & March 2, 2021
Day 1**

Status of the 2021 Placer County LHMP Update Project/Next Steps

LHMP Update Project Schedule/Key Dates

2021 LHMP Update Meetings

- **February 24** (Wednesday) HMPC Meeting #3 (Mitigation Strategy: Goals Development) (2:00-3:30 pm)
- **March 2** (Tuesday) HMPC Meeting #4 (Mitigation Strategy: Actions and Projects) (2:00-4:30 pm)
- **June 9** (Wednesday) Public Meeting #2 (6:00-7:30 pm)
- **June 10** (Thursday) HMPC Meeting #5 (2:00-4:00 pm)

Mitigation Strategy Meetings - Follow up

- **March 5** (Friday) Mitigation Strategy Actions and Projects processed and voting site launched
- **March 12** (Friday) Voting ends
- **March 19** (Friday) Foster Morrison to send Mitigation Action prioritization follow up to HMPC
- **April 9** (Friday) Planning Team Mitigation Action (Project) Worksheets due to Foster Morrison

LHMP Document Drafts

- **March 1 – 5** (M-F) Foster Morrison to send out draft Jurisdictional Annexes for input
- **April 9** (Friday) Jurisdictions to return updated Annexes to Foster Morrison
- **April 16** (Friday) HMPC (First) Draft LHMP to County
- **May 7** (Friday) HMPC comments due on Draft Plan
- **May 19** (Wednesday) Comments incorporated into Public Review (Second) Draft to County
- **May 26** (Wednesday) County to place Public Review Draft on County website
- **June 18** (Friday) all final Planning Team and Public input to Foster Morrison
- **June 30** (Wednesday) Public and HMPC comments incorporated and LHMP submittal to Cal OES – June 2021

Participating Jurisdictions

- County
- All 5 incorporated communities (have hazard data returned from all but 2 incorporated communities)
- 19 District Annexes – (have hazard data returned for all but 1 District)
- **25 Total Participating Jurisdictions**

Placer County Hazard Identification & Profiles

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity	Significance	Climate Change Influence
Agricultural Hazards	Significant	Highly Likely	Critical	Medium	Medium
Avalanche	Limited	Likely	Limited	Low Medium	Medium
Climate Change	Extensive	Likely	Limited	Medium	–
Dam Failure	Significant	Occasional	Critical	High	Medium
Drought & Water Shortage	Extensive	Likely	Critical	High	High
Earthquake	Significant	Occasional	Critical	Medium	Low
Floods: 1%/0.2% annual chance	Limited	Occasional	Critical	High	Medium
Floods: Localized Stormwater	Limited	Occasional/Highly Likely	Limited	Medium	Medium
Landslides, Mudslides, and Debris Flows	Limited	Occasional	Limited	Low	Medium
Levee Failure	Limited	Unlikely	Limited	Low	Medium
Pandemic	Extensive	Likely	Catastrophic	Medium	Medium
Seiche	Limited	Unlikely	Limited	High Low	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium	High
Severe Weather: Freeze and Snow	Extensive	Highly Likely	Critical	Medium	Medium
Severe Weather: Heavy Rains and Storms	Extensive	Occasional	Limited	Medium	Medium
Severe Weather: High Winds and Tornadoes	Extensive	Highly Likely	Critical	High	Low
Tree Mortality	Extensive	Likely	Limited	High	High
Wildfire	Extensive	Highly Likely	Critical	High	High
<div> <div> Geographic Extent Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area </div> <div> Likelihood of Future Occurrences Highly Likely: Near 100% chance of occurrence in next year, or happens every year. Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less. Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years. </div> <div> Magnitude/Severity Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid Significance Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact Climate Change Influence Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact </div> </div>					

Risk Assessment Methodology

Calculating Likelihood of Future Occurrence

The frequency of past events is used in this section to gauge the likelihood of future occurrences. Based on historical data, the likelihood of future occurrence is categorized into one of the following classifications:

- **Highly Likely:** Near 100% chance of occurrence in next year, or happens every year.
- **Likely:** Between 10 and 90% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
- **Occasional:** Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
- **Unlikely:** Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Calculating Vulnerability

Vulnerability is measured in general, qualitative terms, and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential:

- **Extremely Low:** The occurrence and potential cost of damage to life and property is very minimal to non-existent.
- **Low:** Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium:** Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High:** Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have already occurred in the past.
- **Extremely High:** Very widespread and catastrophic impact.

Defining Significance (Priority) of a Hazard

Defining the significance or priority of a hazard to a community is based on a subjective analysis of several factors. This analysis is used to focus and prioritize hazards and associated mitigation measures for the plan. These factors include the following:

- **Past Occurrences:** Frequency, extent, and magnitude of historic hazard events.
- **Likelihood of Future Occurrences:** Based on past hazard events.
- **Ability to Reduce Losses through Implementation of Mitigation Measures:** This looks at both the ability to mitigate the risk of future occurrences as well as the ability to mitigate the vulnerability of a community to a given hazard event.

Placer County Priority Hazards

- Agricultural Hazards
- Avalanche
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Pandemic
- Severe Weather: Extreme Heat
- Severe Weather: Freeze and Snow
- Severe Weather: Heavy Rains and Storms (hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Tree Mortality
- Wildfire

Non-Priority Hazards:

- Levee Failure
- Seiche

Jurisdiction: _____

Priority Hazards???

- Agricultural Hazards
- Avalanche
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Levee Failure
- Pandemic
- Seiche
- Severe Weather: Extreme Heat
- Severe Weather: Freeze and Snow
- Severe Weather: Heavy Rains and Storms (hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Tree Mortality
- Wildfire

Data Needs

Review of Key Items to Date

- Hazard-specific data
 - ✓ Hazard ID tables
 - ✓ Historic Hazard Worksheets or list of past hazard occurrences and impacts to each jurisdiction
 - Old participating jurisdictions – need past occurrences/hazard history since 2016
 - New participating jurisdictions –significant hazard occurrences - back 50 years or so
 - PA Summaries from 2017 Disaster Declarations for affected communities
- Risk Assessment Worksheet (County)
 - ✓ Data on future development areas (County/Cities)
- Status updates to 2016 Mitigation Actions/Projects

Other Data Items

- Logos for each participating jurisdiction
- Photos, Photos, Photos
- Updated Goals Statements **by March 5th**
- New/Carry over Mitigation Action Worksheets due **by April 9th**
- Jurisdictions to return updated Annexes to Foster Morrison **by April 9th**

Mitigation Strategy: Goals

The most important element of the LHMP is the resulting mitigation strategy which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy is comprised of three components:

6. Mitigation Goals
7. Mitigation Actions
8. Mitigation Action (Implementation) Plan

Mitigation Goals

Up to now, the HMPC has been involved in collecting and providing data for the Placer County Local Hazard Mitigation Plan Update. From this information, a Risk Assessment has been developed that describes the risk and vulnerability of the Placer County Planning Area to identified hazards and includes an assessment of the area's current capabilities for countering these threats through existing policies, regulations, programs, and projects.

This analysis identifies areas where improvements could or should be made. Formulating Goals will lead to incorporating these improvements into the Mitigation Strategy portion of the LHMP. Our planning goals should provide direction for what loss reduction activities can be undertaken to make the Planning Area and Participating Jurisdictions more disaster resistant.

Mitigation Goals are general guidelines that represent the community's vision for reducing or avoiding losses from identified hazards. Goals are stated without regard for achievement, that is, implementation, cost, schedule, and means are not considered. ***Goals are public policy statements that:***

- **Represent basic desires of the jurisdiction;**
 - **Encompass all aspects of planning area, public and private;**
 - **Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;**
 - **Are future-oriented, in that they are achievable in the future; and**
 - **Are time-independent, in that they are not scheduled events.**
-
- ❖ ***While goals are not specific (quantitative), they should not be so general as to be meaningless or unachievable.***
 - ❖ ***Goals statements will form the basis for objectives. They should be stated in such a way as to develop one or more objectives related to each goal.***
 - ❖ ***The key point in writing goals is to remember that they must deal with results, not the activities that produce those results.***
 - ❖ ***Consider other planning area goals from other regional/county/city programs, plans and priorities.***

Types/Sources of other area mitigation plans/ programs include:

- General Plans
- Stormwater Program and Plans
- Flood/Watershed Management Plans and Studies
- Drought Plans, Urban/Integrated Regional Water Management Plan
- Community Wildfire Protection Plans
- Strategic Fire Plans
- Dam Emergency Action Plans
- Emergency Operations Plans
- Climate Adaptation Plans
- Other?

2018 State Plan/2016 Placer County LHMP Goals

Goals from the 2018 California State Hazard Mitigation Plan

1. Significantly reduce life loss and injuries.
2. Minimize damage to structures and property, as well as minimizing interruption of essential services and activities.
3. Protect the environment.
4. Promote community resilience through integration of hazard mitigation with public policy and standard business practices.

Placer County 2016 LHMP Update (This is what we are updating)

Goal 1: Minimize risk and vulnerability of Placer County to the impacts of natural hazards and protect lives and reduce damages and losses to property, economy, public health and safety, and the environment.

- Minimize economic and resource impacts and promote long-term viability and sustainability of County resources
- Minimize impacts to both existing and future development from all hazards (through well-planned communities)
- Minimize impacts to natural and cultural resources
- Minimize impacts from climate change
- Minimize impacts to watersheds/Promote watershed health
- Prevent and reduce wildland fire risk and related losses
- Prevent and reduce flood risk and related damages, with a focus on repetitive loss structures and infrastructure

Goal 2: Provide protection for critical facilities, infrastructure, utilities and services from hazard impacts.

- Provide protection for critical infrastructure from the wildland fires, floods, and severe storms/weather (e.g., repeaters, cell towers, water tanks, utilities)
- Improve infrastructure/system reliability for critical lifeline utilities, including stormwater systems, roadways (evacuation routes, emergency services and supplies); rail lines, and pipelines.
- Minimize risk of loss of life and injury to At-risk Populations

Goal 3: Improve public awareness, education, and preparedness for all hazards.

- Enhance public outreach, education, and preparedness program to include all hazards of concern (e.g. fire restrictions, water conservation measures, hazardous vegetation, air and water quality issues)
- Increase public knowledge of the risk and vulnerability to identified hazards and their recommended responses to disaster events to reduce losses
- Educate general public on evacuation planning and sheltering options for all hazard types and to encompass all groups (e.g., residents, visitors, second homeowners, vulnerable populations, animals)
- Increase community awareness and participation in hazard mitigation activities to include defensible space, hazardous vegetation abatement projects, and forest management projects and practices to reduce flood risk on private property
- Utilize multiple public outreach avenues such as schools, new technologies, and social media
- Coordination with other regional jurisdictions to facilitate (consistent/coordinated) public information function prior to, during and after an event (e.g., facebook, twitter, everbridge, web, tv, radio)

Goal 4: Increase communities' capabilities to mitigate losses and to be prepared for, respond to, and recover from a disaster event.

- Continued enhancements to Emergency Services capabilities integrating new technologies to reduce losses and save lives
- Improve interagency (local, state, federal) emergency coordination, planning, training, exercising, and communication to ensure effective community preparedness, response and recovery
- Improve interagency coordination with respect to implementation of mitigation activities such as fuels reduction and other multi-jurisdictional wildland fire projects
- Enhance the use of shared resources/Develop a strong mutual aid support system
- Maintain current service levels/provide for enhanced service levels
- Increase first responders awareness of vulnerable populations and other priority needs during a hazard event;(use of technology to pre-identify and communicate)
- Utilize lessons learned (debriefing) to improve response capabilities
- Promote efficient recovery from incidents to minimize impacts to lives, environment, and economy

Goal 5: Maintain FEMA Eligibility/Position the communities for grant funding.

- Continued compliance with the NFIP/enhancement of floodplain management program through participation in the NFIP's Community Rating System (CRS) where feasible.

Example Goal Statements

- Minimize risk and vulnerability from natural hazards
- Increase communities' awareness of vulnerability to hazards
- Increase the use of shared resources
- Improve communities' capabilities to mitigate losses
- Maintain coordination of disaster plans with changing DHS/FEMA needs
- Maintain FEMA eligibility/position jurisdictions for grant funding
- Maintain/enhance the flood mitigation program to provide 200/500-year flood protection
- Maintain current service levels
- Provide protection for existing buildings from hazards
- Provide protection for future development from hazards
- Provide protection for natural and cultural resources from hazard impacts
- Provide protection for people's lives from hazards
- Provide protection for public health
- Provide protection for critical services (fire, police, etc.) from hazard impacts
- Provide protection for critical lifeline utilities from hazard impacts
- Reduce exposure to hazard related losses
- Reduce the number of emergency incidents
- Make better use of technology

General Recommendation for Categories of Goals

- Reduce Losses/Protection of Life, Property, Public Health, and the Environment from all Hazards
- Reduce Losses/Protection of Critical Facilities and Infrastructure from all Hazards
- Public Education
- Increase County Capabilities to all Hazards
- Any Hazard-specific goals

Goals Development

The purpose of goal's development is to reach a consensus on updated goals for the Placer County 2021 LHMP Updates. Provided above are example goals for this LHMP and goals from the previous 2016 Placer County LHMP. *You may reword those above or develop your own updated goals.*

Each person should provide either via chat (on this zoom call) or email to Jeanine.foster@fostermorrison.com: Two (2) goals they would like to see included for this 2021 Placer County LHMP Update. (Please submit by Friday, March 5th)

When collated, we will combine and rework them into 4-6 goals for this LHMP Update and send them out to the HMPC for further review and refinement.

**Mitigation Strategy Meetings
February 24 & March 2, 2021
Day 2**

Mitigation Strategy Action Development: Ground Rules

Rule 1: All Participating Jurisdictions **MUST** have a Mitigation Action/Project to address each of their Priority Hazards (those rated as a high or medium significance in their respective Hazard Identification table).

Rule 2: Every Mitigation Action/Project **MUST** be supported by Risk Assessment Data contained within Chap 4 of the Base Plan and/or within each Participating Jurisdictions' Annexes. Note: this might necessitate backfilling the hazard risk assessment data.

Rule 3: The Mitigation Actions/Projects for this 2021 LHMP Update should reflect each Participating Jurisdictions' WISH LIST for mitigation, regardless of funding source.

Rule 4: Any Mitigation Action/Project that might be considered for FEMA mitigation grant funding over the next 5-years covered by this LHMP **MUST** be included in this 2021 LHMP Update.

Rule 5: While the updated Mitigation Strategy should include all potential Mitigation Actions/Projects for each Participating Jurisdiction (regardless of funding source), keep in mind that no one is obligated to implement **ANY** of the identified Mitigation Actions/Projects – all are always subject to funding and changing priorities.

Rule 6: Each Mitigation Action/Project to be included in this LHMP Update **MUST** have a Mitigation Action Worksheet completed by each Participating Jurisdictions. This applies to Mitigation Actions/Projects being carried forward from the 2016 LHMP.

Rule 7: Participating Jurisdictions **CAN** include Mitigation Actions/Projects that might not get identified during this Mitigation Action/Project Prioritization process – the key is to complete a Mitigation Action Worksheet for any project to be included in the updated LHMP prior to submittal to Cal OES/FEMA.

REMEMBER: Having a FEMA approved LHMP for your Jurisdiction is a prerequisite for being eligible to apply for FEMA pre and post mitigation funding.

Mitigation Strategy: Actions

Mitigation Actions are specific projects and activities that help achieve the goals and accomplish risk reduction in the community.

Categories of Mitigation Measures

PREVENTION: Preventive measures are designed to keep the problem from occurring or getting worse. Their objective is to ensure that future development is not exposed to damage and does not increase damage to other properties.

- Planning
- Zoning
- Open Space Preservation
- Land Development Regulations
 - ✓ Subdivision regulations
 - ✓ Building Codes
 - Fire-Wise Construction
 - ✓ Floodplain development regulations
 - ✓ Geologic Hazard Areas development regulations (for roads too!)
- Storm Water Management
- Fuels Management, Fire-Breaks

EMERGENCY SERVICES: protect people during and after a disaster. A good emergency services program addresses all hazards. Measures include:

- Warning (flooding, tornadoes, winter storms, geologic hazards, fire)
 - ✓ NOAA Weather Radio
 - ✓ Sirens
 - ✓ “Reverse 911” (Emergency Notification System)
- Emergency Response
 - ✓ Evacuation & Sheltering
 - ✓ Communications
 - ✓ Backup power supply/generators
 - ✓ Emergency Planning
 - Activating the EOC (emergency management)
 - Closing streets or bridges (police or public works)
 - Shutting off power to threatened areas (utility company)
 - Holding/releasing children at school (school district)
 - Ordering an evacuation (mayor)
 - Opening emergency shelters (Red Cross)
 - Monitoring water levels (engineering)
 - Security and other protection measures (police)
- Critical Facilities Protection (Buildings or locations vital to the response and recovery effort, such as police/fire stations, hospitals, sewage treatment plants/lift stations, power substations)

- ✓ Buildings or locations that, if damaged, would create secondary disasters, such as hazardous materials facilities and nursing homes
- ✓ Lifeline Utilities Protection
- Post-Disaster Mitigation
- Building Inspections
 - ✓ ID mitigation opportunities & funding before reconstruction

PROPERTY PROTECTION: Property protection measures are used to modify buildings subject to damage rather than to keep the hazard away. A community may find these to be inexpensive measures because often they are implemented by or cost-shared with property owners. Many of the measures do not affect the appearance or use of a building, which makes them particularly appropriate for historical sites and landmarks.

- Retrofitting/disaster proofing
 - ✓ Floods
 - Wet/Dry floodproofing (barriers, shields, backflow valves)
 - Relocation/Elevation
 - Acquisition
 - Retrofitting
 - ✓ High Winds/Tornadoes
 - Safe Rooms
 - Securing roofs and foundations with fasteners and tie-downs
 - Strengthening garage doors and other large openings
 - ✓ Winter Storms
 - Immediate snow/ice removal from roofs, tree limbs
 - “Living” snow fences
 - ✓ Geologic Hazards (Landslides, earthquakes, sinkholes)
 - Anchoring, bracing, shear walls
 - Dewatering sites, agricultural practices
 - Catch basins
 - ✓ Drought
 - Improve water supply (transport/storage/conservation)
 - Remove moisture competitive plants (Tamarisk/Salt Cedar)
 - Water Restrictions/Water Saver Sprinklers/Appliances
 - Grazing on CRP lands (no overgrazing-see Noxious Weeds)
 - Create incentives to consolidate/connect water services
 - Recycled wastewater on golf courses
 - ✓ Wildfire, Grassfires
 - Replacing building components with fireproof materials
 - Roofing, screening
 - Create “Defensible Space”
 - Installing spark arrestors
 - Fuels Modification

- ✓ Noxious Weeds/Insects
 - Mowing
 - Spraying
 - Replacement planting
 - Stop overgrazing
 - Introduce natural predators

➤ Insurance

NATURAL RESOURCE PROTECTION: Natural resource protection activities are generally aimed at preserving (or in some cases restoring) natural areas. In so doing, these activities enable the naturally beneficial functions of floodplains and watersheds to be better realized. These natural and beneficial floodplain functions include the following:

- storage of floodwaters
- absorption of flood energy
- reduction in flood scour
- infiltration that absorbs overland flood flow
- groundwater recharge
- removal/filtering of excess nutrients, pollutants, and sediments from floodwaters
- habitat for flora and fauna
- recreational and aesthetic opportunities

Methods of protecting natural resources include:

- Wetlands Protection
- Riparian Area/Habitat Protection/Threatened-Endangered Species
- Erosion & Sediment Control
- Best Management Practices

Best management practices (“BMPs”) are measures that reduce nonpoint source pollutants that enter the waterways. Nonpoint source pollutants come from non-specific locations. Examples of nonpoint source pollutants are lawn fertilizers, pesticides, and other farm chemicals, animal wastes, oils from street surfaces and industrial areas and sediment from agriculture, construction, mining and forestry. These pollutants are washed off the ground’s surface by stormwater and flushed into receiving storm sewers, ditches and streams. BMPs can be implemented during construction and as part of a project’s design to permanently address nonpoint source pollutants. There are three general categories of BMPs:

9. Avoidance: setting construction projects back from the stream.
10. Reduction: Preventing runoff that conveys sediment and other water-borne pollutants, such as planting proper vegetation and conservation tillage.
11. Cleanse: Stopping pollutants after they are en route to a stream, such as using grass drainageways that filter the water and retention and detention basins that let pollutants settle to the bottom before they are drained

- Dumping Regulations
- Set-back regulations/buffers

- Fuels Management
- Water Use Restrictions
- Landscape Management
- Weather Modification

STRUCTURAL: Projects that have traditionally been used by communities to control flows and water surface elevations. Structural projects keep flood waters away from an area. They are usually designed by engineers and managed or maintained by public works staff. These measures are popular with many because they “stop” flooding problems. However, structural projects have several important shortcomings that need to be kept in mind when considering them for flood hazard mitigation:

- They are expensive, sometimes requiring capital bond issues and/or cost sharing with Federal agencies, such as the U.S. Army Corps of Engineers or the Natural Resources Conservation Service.
- They disturb the land and disrupt natural water flows, often destroying habitats or requiring Environmental Assessments.
- They are built to a certain flood protection level that can be exceeded by a larger flood, causing extensive damage.
- They can create a false sense of security when people protected by a structure believe that no flood can ever reach them.
- They require regular maintenance to ensure that they continue to provide their design protection level.

Structural measures include:

- Detention/Retention structures
- Erosion and Sediment Control
- Basins/Low-head Weirs
- Channel Modifications
- Culvert resizing/replacement/Maintenance
- Levees and Floodwalls
- Anchoring, grading, debris basins (for landslides)
- Fencing (for snow, sand, wind)
- Drainage System Maintenance
- Reservoirs (for flood control, water storage, recreation, agriculture)
- Diversions
- Storm Sewers

PUBLIC INFORMATION: A successful hazard mitigation program involves both the public and private sectors. Public information activities advise property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. These activities can motivate people to take protection:

- Hazard Maps and Data
- Outreach Projects (mailings, media, web, speakers, displays)
- Library Resources
- Real Estate Disclosure
- Environmental Education

Mitigation Measures from 2016 Placer County LHMP (This is what we are updating)

Action Title	Complete	Ongoing	Not Yet Started	In 2021 Plan Update
Placer County				
Multi-Hazard Actions				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness				
Trail System Way Finding and Directional Signage				
Disaster Debris Management Plan				
Agricultural Actions				
Pest Detection Programs				
Noxious Weed Eradication Programs				
Dam Failure Actions				
Cottonwood Dam Restoration				
Drought Actions				
Retrofit of High Water Use Landscape & Irrigation				
Drought Public Education and Outreach				
Erosion Actions				
Bear Creek Bank Restoration				
Lake Tahoe Basin Environmental Improvement Program (EIP)				
Earthquake Actions				
Fire Station Seismic Upgrade				
Dewitt Demolition				
Health Care Facility Seismic Resiliency				
Flood Actions				
Community Rating System (CRS) Maintain and Enhance				
Stream Channel Clearing – Western Placer County				
Van Norden Dam Lowering and Meadow Restoration				
Miners Ravine Sewer Pipeline Repair				
Sewer System Management Plan Updates				
Stormwater Drainage Improvements				
Bridge and Culvert replacement and drainage improvements				
Urban Level of Flood Protection Mapping				
Elevate Remaining 95 Homes in the Dry Creek Watershed				
Elevate Repetitive Loss Structures in 100-year Floodplain				
Hazardous Material Actions				

Action Title	Complete	Ongoing	Not Yet Started	In 2021 Plan Update
Natural Hazard Minimization Evaluation focusing on top 5 facilities in Placer County producing large quantities of hazardous waste/storage of such hazardous materials				
Wildfire Actions				
Large Strategic Fuel Break				
Fuel Breaks in the Wildland Urban Interface (WUI)				
Wildfire Public Education				
Natural Systems Protection / Education and Awareness Programs – Placer County Wildland Urban Interface (WUI) Strategic Planning				
North Fork American River Fuel Break				
Defensible Space Programs				
Project that focus on Open Space/Defensible Space				
Annual Multi-Agency Wildland Fire Drill				
Vegetation Management – Ongoing Maintenance of Fuel Breaks				
City of Auburn				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Lincoln Basin (Downtown) Drainage Infrastructure				
Creek and Stream Cleaning and Maintenance Program				
Implementation of Storm Water Treatment Plan				
Electric Street Diversion Project				
Old Town Auburn Storm Drain System				
American River Canyon Shaded Fuel Break				
Community Education on Wildfire				
Residential Home Inspections for Compliance of Fire Safe Standards; Defensible Space.				
Maintenance of the Private Lands Portion of the Shaded Fuel Break Along the Rim of the American River Canyon and the Auburn State Recreation Area (ASRA)				
City of Colfax				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Continue Annual Weed Abatement Ordinance				
Colfax Schools Evacuation Site Shaded Fuel Break				
Evaluate the Need and Feasibility of Improving Fire Prevention for the Historic Business District				
City of Lincoln				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				

Action Title	Complete	Ongoing	Not Yet Started	In 2021 Plan Update
Lincoln Boulevard: Auburn Ravine Bridge – Reconstruct Bridge				
McBean Park Drive: Auburn Ravine Bridge – Additional 110' Span				
Lakeview Farms Regional Volumetric Mitigation Facility				
Gladding Parkway, Lincoln Boulevard, McCourtney Road – Stream Restoration And Culvert Improvement				
"O" Street Drainage Improvements				
7th Street Drainage Improvements				
Auburn Ravine at State Route 193 Bridge				
Auburn Ravine at State Route 65 Bridge				
Ingram Slough – Orchard Creek Return Channel				
Markham Ravine – Updated FEMA Analysis And Mapping				
Markham Ravine Drainage Improvements – Union Pacific Railroad & State Route 65 Crossings				
Auburn Ravine Stream Restoration Projects (Analysis and Repairs)				
Auburn Ravine Stream Restoration Projects (Analysis and Repairs)				
Coon Creek Streambed Restoration Projects (Analysis Only)				
Fire Prevention and Fuels Management Plan				
City of Rocklin				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Federal Emergency Management Agency (FEMA) Floodplain/Community Rating System (CRS)				
Creek Channel and Drainage Way Clearing and Maintenance				
High Water Use Landscape and Irrigation Retrofit				
Open Space Fire Prevention & Vegetation Management Prescribed Grazing				
GIS Based Mapping of Pertinent Information that can be used by All Agencies in the Development of Plans and During Emergency Incidents				
Town of Loomis				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Local Bridges Evaluation Program				
Address signage for property addresses				
Delmar Avenue Headwall Reconstruction Project				
Creek Maintenance Secret Ravine & Antelope Creek				
Reconstruction of Brace Bridge at Secret Ravine				
Raise Flood-Prone Houses Along Loomis Creeks				

Action Title	Complete	Ongoing	Not Yet Started	In 2021 Plan Update
Alta Fire Protection District				
Apparatus Water Fill & Drafting Location Improvements				
Evacuation / Reunification Center Improvements				
Natural Systems Protection / Education and Awareness Programs and Community Fuel Breaks				
Natural Systems Protection / Education and Awareness Programs				
Emergency Communications and Information System Improvements.				
Alta Fire Protection District CERT Team				
Reflective Addressing				
Alpine Springs County Water District				
Emergency Electrical Generator Replacement Project				
Water Storage Tank Replacement Project				
Mineral Springs Soil Bank Stabilization Project				
Alpine Meadows Consolidated Defensible Space Continuation Project				
Foresthills Fire Protection District				
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.				
Foresthill Biomass Project				
Assess and Enhance Foresthill Fire Protection District (FFPD) New Subdivision, Hazard Fuels Clearing and Maintenance Ordinance. Put Programs in Place with Homeowners Associations in CC&R's and Maintenance Contracts.				
Todd Valley Shaded Fuel Break				
Completion of Fuels Management Projects within the Foresthill/Iowa Hill Fire Safe Council, Greater Auburn Area Fire Safe Council and Placer Sierra Fire Safe Council Areas of the Western Slope of Placer County.				
Loomis Fire Protection District				
Identify and inspect ALL bridges in LFPD				
Vegetation Management for Open Areas				
Address Signs for Rural Residences				
Adopt 2016 CFC, CBC, and local standards				
Nevada Irrigation District				
Combie Phase 1 Replacement				
Centennial Water Storage and Power Supply Project				
Water Service Auburn Valley CSD				

Action Title	Complete	Ongoing	Not Yet Started	In 2021 Plan Update
NID Headquarters Office Generator				
Orr Creek Diversion				
Reservoir Cleaning				
Canal Culvert Replacement Program				
Northstar Community Services District				
Martis Landing Drainage Swales and Catch Basins				
Continue Easement Access Road Water Bar Maintenance and Replacement Program				
Fuels Reduction @ Sawmill Reservoir				
Fuels Reduction Program				
Storm Water Drainage Inlet Maintenance				
Siphon Line				
Provide Power from Mobile Generator				
Green Waste Recycling Program				
Enhance our current Defensible Space Program by seeking funding to hire a part-time employee to assist the Fire Prevention department in running this program				
District Water Conservation Program				
North Tahoe Fire Protection District				
FCC P-25 Interoperability Radio Systems				
District GIS Technology, Equipment, Database and Mapping Improvements				
North Tahoe Fire Protection District Critical Facility Infrastructure Improvements				
Seiche Wave Warning Systems, Signs and Public Education				
Defensible Space Inspection, Tree Marking, Chipping Program, and Public Education				
Hazardous Wood Roof Replacement Program				
Regional Water System Fire Protection Upgrades and Interoperability				
Skid Steer Loader with Transport Trailer, Fuels Reduction Masticator Attachment and Snow Blower Attachment				
Hydrant Risers, Replacements and Markers				
North Tahoe Public Utility District				
Update SCADA Equipment and Telecommunications Infrastructure				
IT and Telecommunications Improvements for Disaster Preparedness				
Update Emergency Response Plan				

Action Title	Complete	Ongoing	Not Yet Started	In 2021 Plan Update
Backup Generator Installation at Critical Facilities				
Fuels Reduction around Critical Infrastructure and North Tahoe Regional Park				
Kingswood West Subdivision Emergency Evacuation Access				
North Tahoe Regional Park Road Improvements for Emergency Access				
Seismic Study and Retrofit of Critical Infrastructure				
Sewer Main Replacements in Shorezone of Lake Tahoe				
Water Booster Pump Station Rehabilitation/Replacement				
Increased Storage Capacity for Dollar Cove Water System				
Water System Interties				
Placer County Flood Control District				
FEMA CTP DFIRM Mapping Study				
Pursue Regional Detention and Retention Projects within the Dry Creek and Cross Canal Watersheds				
Update Hydrology and Hydraulic Models within the Cross Canal Watershed				
Upgrade of Flood Warning System to Include Additional Gage Locations and Flood Forecasting Capabilities				
Placer County Water Agency				
Hillside Slope Stabilization				
LL Anderson Dam Spill Way Modification				
Water System Interties				
Vegetation Management and Brushing				
Enhance Canals by Converting Earthen Canals to Gunite-Lined Canals in Critical Areas				
Replace Wooden Flume Structures				
De-Silt Reservoirs.				
Placer Hills Fire Protection District				
Assess And Enhance Placer Hills Fire Protection District (PHFPD) Onsite Water Requirements For Minor Lot Splits				
South Placer Fire Protection District				
Vegetation Management for Open Areas				
Address Signs for Rural Residences				
Adopt 2016 CFC, CBC, and local standards				
Squaw Valley Public Service District				
Emergency Water Supply Interconnection to Martis Valley				
Truckee River Siphon				

Action Title	Complete	Ongoing	Not Yet Started	In 2021 Plan Update
Squaw Creek Siphon				
Easement Abatement/Maintenance of Emergency Access				
Develop a Community-Wide Emergency Notification System Capable of Providing Information to Both Residents and Visitors by Utilizing Permanent, Roadside Changeable Message Boards and a Low-Power Radio Transmitter				
SVPSD/Mutual Water Company Inter-tie				
Water Tank Earthquake Retrofit Project				
Tahoe City Public Utility District				
Bunker Water Tank Replacement				
West Lake Tahoe Regional Water Treatment Plant				
Tahoe Main Emergency Water Supply				
Tahoe Truckee Unified School District				
North Tahoe High School and Middle School, Tahoe Lake Elementary School Emergency Generators.				
School Site and Community Education of Procedures Related to Safety and Emergency Situations. Improvement of District Wide Emergency Communication and Alert Systems.				
HVAC Control Upgrades				
Truckee Fire Protection District				
Community Wildfire Protection Plan				
Severe Winter Weather and Propane Issues Mainly in Serene Lakes				

Mitigation Strategy: Action (Implementation) Plan

The mitigation action plan describes how the mitigation actions will be implemented, including how those actions will be prioritized, administered, and incorporated into the community's existing planning mechanism. Each participating jurisdiction must have a mitigation action(s) and an action plan specific to that jurisdiction and its priority hazards and vulnerabilities.

Mitigation Criteria

For use in selecting and prioritizing Proposed Mitigation Measures

1. STAPLEE

Social: Does the measure treat people fairly? (different groups, different generations)

- Community Acceptance
- Effect on Segment of Population
- Social Benefits

Technical: Will it work? (Does it solve the problem? Is it feasible?)

- Technical Feasibility
- Reduce Community Risk
- Long Term Solution/Sustainable
- Secondary Impacts

Administrative: Do you have the capacity to implement & manage project?

- Staffing
- Funding Allocated
- Maintenance/Operations

Political: Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support?

- Political Support
- Local Champion
- Public Support
- Achieves Multiple Objectives
- Supported by a broad array of Stakeholders

Legal: Does your organization have the authority to implement? Is it legal? Are there liability implications?

- Existing Local Authority
- State Authority
- Potential Legal Challenges

Economic: Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development?

- Benefit of Action
- Cost of Action
- Cost Effective/Economic Benefits
- Economically Viable
- Outside Funding Required

Environmental: Does it comply with Environmental regulations?

- Effect on Land/Water
- Effect on Endangered Species
- Effect on Cultural Resources
- Effect on Hazmat sites
- Consistent with Community Environmental Goals
- Consistent with Environmental Laws
- Environmental Benefits

2. SUSTAINABLE DISASTER RECOVERY

- Quality of Life
- Social Equity
- Hazard Mitigation
- Economic Development
- Environmental Protection/Enhancement
- Community Participation

3. SMART GROWTH PRINCIPLES

- Infill versus Sprawl
- Efficient Use of Land Resources
- Full Use of Urban Resources
- Mixed Uses of Land
- Transportation Options
- Detailed, Human-Scale Design

4. OTHER

- Does measure address area with highest risk?
- Does measure protect ...
 - ✓ The largest # of people exposed to risk?
 - ✓ The largest # of buildings?
 - ✓ The largest # of jobs?
 - ✓ The largest tax income?
 - ✓ The largest average annual loss potential?
 - ✓ The area impacted most frequently?

- ✓ Critical Infrastructure (access, power, water, gas, telecommunications)
- Timing of Available funding
- Visibility of Project
- Community Credibility

Mitigation Action Prioritization (Voting) Instructions

The mitigation actions and projects will be further collated by hazard and will be presented back to the HMPC for prioritization. **An email link to the voting site will be launched Friday March 5th; voting will be open for a week and will close Friday March 12th.** The voting website location is <https://fostermorrison.aweeba.com/>.

Each person will have 9 votes total to vote for their preferred mitigation actions/projects:

- *3 high priority votes (5 points each)*
- *3 medium priority votes (3 points each)*
- *3 low priority votes (1 point each)*

Your votes will indicate the consensus of the team.

Use the list of mitigation selection criteria (above) to help you make your determinations.

After the votes are tabulated, we will send out an email detailing mitigation action prioritization results and next steps.

Mitigation Action Worksheet

Jurisdiction:	
Mitigation Action/Project Title:	
Hazards Addressed:	
Issue/Background:	
Project Description:	
Other Alternatives:	
Existing Planning Mechanism(s) through which Action Will Be Implemented:	
Responsible Office/Partners:	
Cost Estimate:	
Benefits (Losses Avoided):	
Potential Funding:	
Timeline:	
Project Priority:	

Worksheet completed by:	
Name and Title:	
Phone:	

Placer County 2021 LHMP Update

Mitigation Strategy Meetings – Action Prioritization

50 Voting Members

Actions sorted by Vote Totals

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Backup power supply for critical facilities and infrastructure/Generator projects	Multi-Hazard	37
Community Wildfire Protection Plans (CWPP) – Implementation of Projects	Wildfire/Tree Mortality	36
Fire Prevention and Fuels Management Plan	Wildfire/Tree Mortality	35
Continue to implement, and update as necessary, the Strategic Plan for Placer County Wildfire Protection and Biomass Utilization Program to seek ways to reduce the efforts of catastrophic wildfires, and convert unwanted woody biomass to produce heat and/or electrical power, alternative transportation fuels, or beneficial bio-based chemicals and products.	Wildfire/Tree Mortality	30
Critical Facility Infrastructure Improvements	Multi-Hazard	30
Fuel reduction projects	Wildfire/Tree Mortality	29
Open Space fire prevention & vegetation management prescribed grazing	Wildfire/Tree Mortality	29
Defensible space inspection, tree marking, chipping program and public education	Wildfire/Tree Mortality	27
Expand the county's capacity to restore conifer forest health on private and public lands, which includes active management to reduce fire risk, including removal and disposal of diseased trees and other fuels. Work with public and private partners to identify appropriate locations for mills, biomass facilities, or other facilities that support the reuse of trees for other uses, including composting and renewable energy.	Wildfire/Tree Mortality	26
Implement the actions contained within the Placer County Climate Adaptation Plan	Climate Change	24
Work with telecommunication companies to install fiber-optic infrastructure allowing for faster and higher-capacity broadband internet, including telecommunication systems that can be used to more effectively distribute emergency communications and alerts to members of the public	Multi-Hazard	24
Construct additional water storage facilities and improve existing facilities to augment surface and groundwater supplies for agricultural uses while continuing to provide ecosystem protections	Agricultural Hazard/Drought	22
Implement the actions contained within the Placer County Sustainability Plan	Climate Change	21
Chipper program	Wildfire/Tree Mortality	21
Vegetation management – Ongoing maintenance of fuel breaks	Wildfire/Tree Mortality	21

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Water source redundancy and reliability projects	Drought and Water Shortage	20
McBean Park Drive: Auburn Ravine bridge – additional 110' Span	Flood	20
Lakeview Farms regional volumetric mitigation facility	Flood	20
Water system intertie projects and connections	Drought and Water Shortage	19
Defensible space program	Wildfire/Tree Mortality	19
Establish a Biomass Facility – fixed/portable	Wildfire/Tree Mortality	19
Expand broadband/wifi access	Multi-Hazard	18
Develop an Avalanche Risk Reduction and Response Plan (multi-agency) for Placer County	Avalanche	17
Establish emergency water supply interconnections	Drought and Water Shortage	17
Implement organics waster (food and green waste) reduction/recycling programs to reduce emissions from the decomposition of organic waste in the landfill (organics creates methane, which contributes to climate change; Cal Recycle requires 75% reduction by 2025)	Climate Change	16
Vegetation management projects	Wildfire/Tree Mortality	16
Enhance public education and awareness of natural hazards and public understanding of disaster preparedness	Multi-Hazard	16
Increase broadband systems and access	Pandemic	15
Continue to support new FireWise communities/conduct FireWise community inspections	Wildfire/Tree Mortality	15
Explore creating wildfire abatement districts to provide fuel-clearing services and maintenance of defensible space on public and private land within the county.	Wildfire/Tree Mortality	15
Drainage improvement projects	Flood	14
Large strategic fuel breaks, including those in the Wildland Urban Interface (WUI) areas	Wildfire/Tree Mortality	14
Evacuation planning countywide	Multi-Hazard	14
Noxious weed eradication programs	Agricultural Hazard	13
Ensure that County facilities used as cooling centers are equipped with backup power supplies, including on-site renewable energy generation and energy storage systems as feasible	Severe Weather: Heat	13
Home hardening projects	Wildfire/Tree Mortality	13
Pest detection programs	Agricultural Hazard	12

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Enhance programs and improve capabilities/efficiency to receive/recycle green waste	Climate Change	12
FEMA CTP DFIRM mapping study	Flood	12
Undergrounding of utilities	Severe Weather: All	12
Improve water systems for suppression and resiliency against wildfires	Wildfire/Tree Mortality	12
Identify/support new or expanded fuel reduction projects, including those that provide assistance for biomass facilities.	Wildfire/Tree Mortality	12
Work with stakeholders to develop a pilot project on private or public land that demonstrates the cost-savings of treating and managing land for wildfire prevention in relation to air quality and other ecosystem services. The project could consider both direct (i.e. homes and roadways) and indirect costs (i.e. social capital and air quality), the costs of management and prevention compared to the costs of no action and recovery, and the emission reduction potential of good forest management to the extent possible.	Wildfire/Tree Mortality	11
GIS based mapping of pertinent information that can be used by all agencies in the development of plans and during emergency incidents	Multi-Hazard	11
Increase soil organic matter to improve soils' water-holding capacity, soil structure, and water infiltration, and to reduce erosion (use cover crops and mixes, native grasses, crop or livestock residues, compost, mulch, biochar, or other organic amendments)	Drought and Water Shortage	10
Lincoln Boulevard: Auburn Ravine bridge – reconstruct bridge	Flood	10
Auburn Ravine stream restoration projects	Flood	10
Wildfire smoke impact response – education and outreach	Wildfire/Tree Mortality	10
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	Multi-Hazard	10
Interoperability radio systems	Multi-Hazard	10
Develop Climate Adaptation Plan	Climate Change	9
Sedimentation removal from reservoirs	Dam Failure	9
Floodproofing utilities and critical facilities and infrastructure	Flood	9
Repair and replace lift stations	Flood	9
Prescribed burns	Wildfire/Tree Mortality	9
Fuel reduction for previously burned areas	Wildfire/Tree Mortality	9
Explore the feasibility of installing a microgrid at the Placer County Government Center for backup power and evaluate the feasibility of microgrids in Tahoe or Foresthill to provide emergency response and economic resiliency.	Multi-Hazard	9
Conduct seismic evaluation and retrofits of public buildings and critical facilities and infrastructure	Earthquake	8
Stream and creek channel and drainage way clearing and maintenance projects	Flood	8

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Natural Systems Protection / Education and Awareness Programs – Placer County Wildland Urban Interface (WUI) Strategic Planning	Wildfire/Tree Mortality	7
Install piezometers in earthen dams	Dam Failure/ Earthquake	6
Increase the use of permeable surfaces and rainwater catchment/retention systems in developed areas to enhance groundwater recharge	Drought and Water Shortage	6
Support the West Placer Groundwater Sustainability Agency's efforts to develop a Groundwater Sustainability Plan in accordance with state regulations	Drought and Water Shortage	6
Water tank earthquake retrofit project	Earthquake	6
Bridge and culvert replacement projects	Flood	6
Auburn Ravine at State Route 193 Bridge	Flood	6
Upgrade of flood warning systems to include additional gage locations and flood forecasting capabilities	Flood	6
Update hydrology and hydraulic models within the Cross Canal Watershed	Flood	6
Conduct avalanche mitigation in high risk areas	Avalanche	5
Foresthill Transfer Station – Increase the amount of tipping bays for green waste to improve efficiency.	Climate Change	5
Explore ways to improve the storage capacity and generation efficiency at PCWA/County hydroelectric power plants and to increase installation of small-scale hydroelectric facilities. Identify areas appropriate for small-scale hydroelectric facilities	Climate Change	5
Spillway projects to control the flow of water	Dam Failure	5
Water booster pump station rehabilitation/replacement	Drought and Water Shortage	5
Installation of SCADA systems	Flood	5
Pursue regional detention and retention projects within the Dry Creek and Cross Canal Watershed	Flood	5
Conduct structural retrofits of at-risk bridges to protect against flooding and landslides/debris flows. Emphasize bridges with lower stability ratings and higher traffic counts. E.g., Edgewood Road over Wise Canal and Dry Creek Road over Rock Creek	Flood/Landslide	5
Develop a communitywide emergency notification system capable of providing information to both residents and visitors by utilizing permanent, roadside changeable message boards and a low power transmitter	Multi-Hazard	5
IT and telecommunications improvements for disaster preparedness	Multi-Hazard	5
In coordination with utility companies, explore replacing streetlights with new models, or augmenting existing streetlights with additional features, allowing them to act as public Wi-Fi beacons, traffic counters, and relay stations for public emergency alerts. Prioritize development of smart street lights in the Tahoe Basin	Multi-Hazard	5
Update the Emergency Operations Plan to include dam failure events	Dam Failure	4
Groundwater recharge projects	Drought and Water Shortage	4

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Squaw Creek siphon	Drought and Water Shortage	4
Increased Storage Capacity for Dollar Cove Water System	Drought and Water Shortage	4
Elevate remaining 95 homes in the Dry Creek Watershed	Flood	4
Enhance/continue weed abatement ordinance/hazardous vegetation ordinance	Wildfire/Tree Mortality	4
Hydrant risers, replacements, and markers	Wildfire/Tree Mortality	4
GIS technology, equipment, database, and mapping improvements	Multi-Hazard	4
Local air quality sensors to provide instantaneous public information on local PM concentrations due to wildfire smoke	Multi-Hazard	4
Conduct ongoing public outreach about water conservation programs throughout Placer County	Drought and Water Shortage	3
Canal culvert replacement program	Flood	3
Ensure that wastewater infrastructure in flood-prone areas is hardened to minimize the risk of overflow	Flood	3
Erosion repair and control projects	Flood	3
Best Management Practices (BMP) implementation	Flood	3
Coon Creek streambed restoration projects	Flood	3
Urban level of flood protection mapping	Flood	3
Stormwater drainage inlet maintenance	Flood	3
Increase resiliency of single-access roads and trails (particularly popular trails and those that could provide access to isolated communities if the primary road is damaged or inaccessible) to flooding by improving drainage systems, increasing roadbed height, and other protective steps as feasible and appropriate	Flood	3
North Fork American River fuel break	Wildfire/Tree Mortality	3
Establish underground waterlines for delivery to fire hydrants	Wildfire/Tree Mortality	3
Improve access to canals and ditches by emergency vehicles to access water for fire fighting	Wildfire/Tree Mortality	3
Replace wooden flume structures	Wildfire/Tree Mortality	3
Coordinate with the California Department of Housing and Community Development, mobile home park owners, and mobile home tenants in wildfire hazard zones to reduce fuel availability and maximize defensible space.	Wildfire/Tree Mortality	3
New flood/hydrology related studies should factor climate change into models to accommodate future floods events	Climate Change	2
Provide education and outreach on organic waste and GHG emissions	Climate Change	1
Increase access to organics recycling and edible food recovery capacity	Climate Change	1

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Sewer main replacements in Shorezone of Lake Tahoe	Drought and Water Shortage	1
Elevate repetitive loss structures in 100-year floodplain	Flood	1
Relocation of 36" sewer line that crosses the Truckee River below Lake Tahoe. (The river water level reaches this pipe at a release of 2000 cfs from Lake Tahoe)	Flood	1
Auburn Ravine at State Route 65 Bridge	Flood	1
HVAC system upgrades	Pandemic	1
Place warning signage in key areas around Lake Tahoe	Seiche	1
Using cool roofing products that reflect sunlight and heat away from buildings	Severe Weather: Heat	1
Regional water system fire protection upgrades and interoperability	Wildfire/Tree Mortality	1
Work with dam owners to maintain all dams in Placer County to a high degree of structural integrity	Dam Failure/ Earthquake	0
Enhance canals by converting earthen canals to gunite-lined canals in critical areas	Drought and Water Shortage	0
Develop a rebate program for greywater and rainwater catchment systems	Drought and Water Shortage	0
West Lake Tahoe regional water treatment plant	Drought and Water Shortage	0
Community Rating System (CRS) - maintain and enhance	Flood	0
Develop/update/implement stormwater master plans	Flood	0
Raise/relocate utilities out of the floodplain/above base flood elevation	Flood	0
Elevate roads above base flood elevation to maintain dry access	Flood	0
Gladding Parkway, Lincoln Boulevard, McCourtney Road – Stream restoration and culvert improvement	Flood	0
"O" Street drainage improvements	Flood	0
7th Street drainage improvements	Flood	0
Ingram Slough – Orchard Creek return channel	Flood	0
Markham Ravine – Updated FEMA analysis and mapping	Flood	0
Markham Ravine drainage improvements – Union Pacific Railroad & State Route 65 crossings	Flood	0
Conduct regular cleaning and maintenance of storm drains along key roadways, especially in advance of the rainy season. Improve storm drain capacity in areas where ponding is regularly observed	Flood	0
Siphon lines	Flood	0
Annually distribute flood protection safety pamphlets to educate citizens about safety during flood conditions, including the dangers of driving on flooded roads	Flood	0
Hillside Slope Stabilization	Flood/Landslide	0
Install warning/siren system	Seiche	0

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Severe Weather Annex update and revision	Severe Weather: All	0
Increase tree plantings around buildings to shade parking lots and along public rights-of-way	Severe Weather: Heat	0
Fuel reduction around critical infrastructure and North Tahoe Regional Park	Wildfire/Tree Mortality	0
Shaded fuel break along west shore of Folsom Lake – Granite Bay	Wildfire/Tree Mortality	0
Evaluate the need and feasibility of improving fire prevention for the historic business districts	Wildfire/Tree Mortality	0
Acquire skid steer loader with transport trailer, fuels reduction masticator/snow blower attachment	Wildfire/Tree Mortality	0
Easement abatement/maintenance of emergency access areas	Wildfire/Tree Mortality	0
North Tahoe Regional Park road improvements for emergency access	Multi-Hazard	0